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PCT/EP 99/07111
Appl.: LuK Automobiltechnik...

23 149 GL-to-ho
October 10, 2000

New Claims 1 to 36

1. Vacuum pump, in particular for brake booster systems in motor vehicles, with a drivable rotor (1) via which a blade in a housing can be set in rotation where the rotor (1) consists of plastic and is formed as one piece characterized by the fact that the rotor (1) has a first longitudinal section (7) which can be coupled to a drive shaft via which a torque can be transmitted from the drive shaft to the rotor (1) and that the first longitudinal section (7) is formed as one piece with the rotor (1).

2. Vacuum pump, in particular for brake booster systems in motor vehicles, with a drivable rotor (1) via which a blade in a housing can be set in rotation where the rotor (1) consists of plastic and is formed as one piece characterized by the fact that at the rotor (1) an opposing surface (43) is provided for each a bearing surface (41) of a coupling (35) where a torque transmitted from the drive shaft can be conducted into the rotor (1) via the opposing surface (43).

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3. Vacuum pump according to one of the preceding claims characterized by the fact that the rotor (1) preferably produced in the injection-molding process has at least one cavity (23) open at the edge.

4. Vacuum pump according to claim 3 characterized by the fact that the cavity (23, 23A, 23B, 23C) is introduced preferably from the drive-side frontal side (17) of the rotor (1) or from its frontal face (5) turned away from the drive.

5. Vacuum pump, in particular for brake booster systems in motor vehicles, with a drivable rotor (1) via which a blade in a housing can be set in rotation where the rotor (1) consists of plastic and is formed as one piece characterized by the fact that the rotor (1) has at least two cavities (23, 23A, 23B, 23C) which are each introduced from a frontal side (5, 17) of the rotor (1) and that the rotor (1) has at least one closed wall running transversely or essentially transversely to the central longitudinal axis (29) of the rotor (1), said wall separating the cavities (23, 23A, 23B, 23C) from one another in the axial direction.

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6. Vacuum pump according to claim 5 characterized by the fact that cavities (23, 23A, 23B, 23C) extend in the axial direction into the central area of the rotor (1).

7. Vacuum pump according to one of the preceding claims characterized by the fact that the walls of the rotor (1) have a slight thickness.

8. Vacuum pump according to one of the preceding claims characterized by the fact that the transition between two wall areas of the rotor (1) having a different thickness is continuous, preferably without steps.

9. Vacuum pump according to one of the preceding claims characterized by the fact that the rotor (1) has at least one support (13, 21) whose diameter is smaller, preferably only negligibly smaller, than the rotor diameter in the area of the slot (3) in which the blade is displaceable.

10. Vacuum pump according to one of the preceding claims 1 to 9 characterized by the fact that the rotor (1) has at least one support (21) whose diameter is the same size as the rotor diameter in the area of the slot (3) in which the blade is displaceable.

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11. Vacuum pump according to one of the preceding claims characterized by the fact that the rotor (1) has two supports (13, 21) and that the diameter of at least one of the supports (21, 13) is smaller, preferably significantly smaller, than the rotor diameter in the area of the slot (3).

12. Vacuum pump according to one of the preceding claims characterized by the fact that the rotor (1) has at least two cavities disposed next to one another (23A, 23B, 23C) which are separated from one another by a rib (31).

13. Vacuum pump according to claim 12 characterized by the fact that the rib (31) is thinner than the rest of the wall areas of the rotor (1).

14. Vacuum pump according to one of the preceding claims characterized by the fact that the rotor (1) can be energized with a torque via a coupling (35) formed by a disk (37).

15. Vacuum pump according to one of the preceding claims characterized by the fact that the ratio of the thickness (b) and the diameter (d) of the disk (37) lies in a range of $0.1\,4 \leq b/d \leq 0.3$.

16. Vacuum pump according to claim 2 characterized by the fact that the opposing surface (43) is located on a drive segment (45A, 45B) projecting over the drive-side frontal surface of the rotor (1).

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17. Vacuum pump according to one of the preceding claims characterized by the fact that the ratio of the support length (l) of the drive segment (45A, 45B) and the diameter (D) of the rotor (1) lies in a range of $0.35 \leq l/D \leq 0.65$.

18. Vacuum pump according to one of the preceding claims characterized by the fact that at least two drive segments (45A, 45B) are provided which are connected to one another by a closed ring (47).

19. Vacuum pump according to one of the preceding claims characterized by the fact that the coupling has a long hole (39) in which the drive shaft engages or a drive tongue, preferably a double surface (49), which engages in a corresponding slot in the drive shaft.

20. Vacuum pump according to one of the preceding claims characterized by the fact that, preferably formed as the double surface (9), a first longitudinal section (7) of the rotor (1) is provided with a vat-like cap (51) preferably consisting of sheet metal.

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21. Vacuum pump according to one of the preceding claims characterized by the fact that the rotor (1) has an elastic drive element (57) working together with a drive shaft.

22. Vacuum pump according to one of the preceding claims characterized by the fact that the drive element (57) consists of sheet metal, preferably spring metal.

23. Vacuum pump according to one of the preceding claims characterized by the fact that the drive element projects into a slot (69) in the drive shaft (71) and is displaceably guided in it.

24. Vacuum pump according to one of the preceding claims characterized by the fact that the drive element engages in a slot-like recess (61) in the rotor.

25. Vacuum pump according to one of the preceding claims characterized by the fact that the drive element (57) is held undisplaceably in the recess (61).

26. Vacuum pump according to one of the preceding claims 1 to 23 characterized by the fact that the drive element (57) is embedded in the rotor (1).

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27. Vacuum pump according to one of the preceding claims characterized by the fact that the drive element (57) is formed in the shape of a U.

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28. Vacuum pump according to one of the preceding claims characterized by the fact that during the energizing of the drive element (57) with a torque it bears on at least one section (stop surface (77)) of the recess (61).

29. Vacuum pump according to claim 28 characterized by the fact that the drive element (57) is formed as a ball in the bearing area.

30. Vacuum pump according to one of the preceding claims characterized by the fact that the rotor has at least one stop for the drive element.

31. Vacuum pump according to one of the preceding claims characterized by the fact that the drive element is angled off at its end engaging the recess in the rotor.

32. Vacuum pump according to one of the preceding claims characterized by the fact that the rotor (1) can be driven with the aid of the internal combustion engine of a motor vehicle and/or by a motor, in particular an electric motor.

33. Vacuum pump according to one of the preceding claims characterized by the fact that the

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rotor (1) has a first longitudinal section (7) which can be coupled to a drive shaft via which a torque can be transmitted from the drive shaft to the rotor (1) and that the first longitudinal section (7) is formed as one piece with the rotor (1).

34. Vacuum pump according to one of the preceding claims 5 to 32 characterized by the fact that at the rotor (1) an opposing surface (43) is provided for each a bearing surface (41) of a coupling (35) where a torque transmitted from the drive shaft can be conducted into the rotor (1) via the opposing surface (43).

35. Vacuum pump according to one of the preceding claims 5 to 34 characterized by the fact that the rotor (1) preferably produced in the injection-molding process has at least one cavity (23) open at the edge.

36. Vacuum pump according to claim 35 characterized by the fact that the cavity (23, 23A, 23B, 23C) is introduced preferably from the drive-side frontal side (17) of the rotor (1) or from its frontal face (5) turned away from the drive.